



# NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

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October 26, 1984  
Project No. 84272 OC

B & V Construction Company  
25301 Novi Road  
Novi, Michigan 48050

ATTN: Mr. Donald J. Treder

RE: Clay Cap Evaluation  
BASF - Wyandotte Landfill  
Riverview, Michigan

US EPA RECORDS CENTER REGION 5



406761

Dear Mr. Treder:

This letter presents the results of evaluation tests on a mixture of Bag Nos. 5, 8 and 10 of the silty clay material being used as a clay cap for the above referenced project. The bag samples were obtained from the approximate locations shown on Figure 1 from Wayne County Sewage Abatement Site at Goddard and Moran in Taylor, Michigan.

Test results on a mixture of Bag Nos. 5, 8 and 10 material consisted of Modified Proctor, sieve and hydrometer analysis, Atterberg limits and permeability. The results of the proctor, sieve analysis and Atterberg limits are presented on the attached Figures 2, 3 and 4. These results indicate that the combined bag material has a "CL" designation according to the Unified Classification System, and is essentially the same as material previously approved for use as a clay cap.

Three permeability tests were performed on samples of the silty clay that were prepared and compacted in brass liners (3-inch long and 1-3/8-inch in diameter). The soil was compacted to a density of approximately 90 percent of the Modified Proctor value at different moisture contents. The permeability test results are as follows:

Liner No.	Remolded Density (pcf)	Percent Compaction*	Percent Moisture	Coefficient of Permeability (cm/sec)
1	105.5	89.8	11.3	6.4 x 10 <sup>-8</sup>
2	105.9	90.2	13.2	5.5 x 10 <sup>-8</sup>
3	105.1	89.5	15.4	5.2 x 10 <sup>-8</sup>

\*Based on a maximum Modified Proctor density value of 117.4 pcf at an optimum moisture content of 13.0 percent.

Mr. Donald J. Treder  
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The results of the evaluation tests indicate that the mixture of Bag Nos. 5, 8 and 10 materials has a permeability coefficient of less than  $1 \times 10^{-7}$  cm/sec, and is therefore considered suitable for use as a clay cap.

If you have any questions about this letter or the attached data, please call.

Very truly yours,

NEYER, TISEO & HINDO, LTD.



D. Nona, P.E.

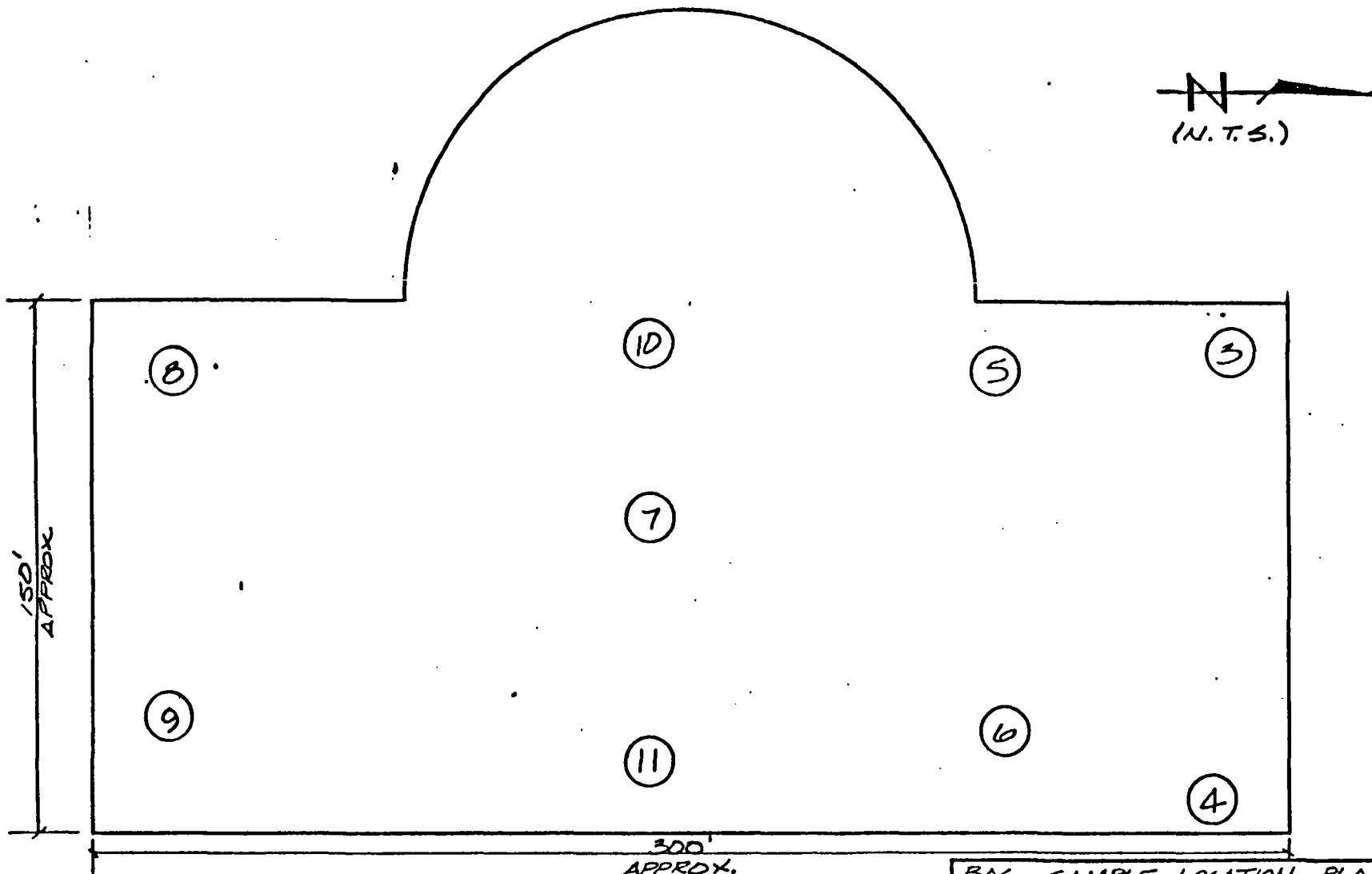
DN/alm  
Attachments



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OCT 31 1984

OCT 3 1984



LEGEND:

- (1) APPROXIMATE LOCATION OF BAG SAMPLES  
OBTAINED FROM WAYNE COUNTY SEWAGE  
ABATEMENT. SITE AT GODDARD AND  
MORAN IN TAYLOR, MICHIGAN. ALL SAMPLES  
OBTAINED BETWEEN ELEVATIONS 586' TO 595'

BAG SAMPLE LOCATION PLAN  
CLAY CAP ELEVATION BASE  
WYANDOTTE LANDFILL  
RIVER VIEW, MICHIGAN

**NTH** NEYER, TISEO & HINDO, LTD.  
**ETC** CONSULTING ENGINEERS  
30999 TEN MILE RD. • FARMINGTON HILLS, MI 48324

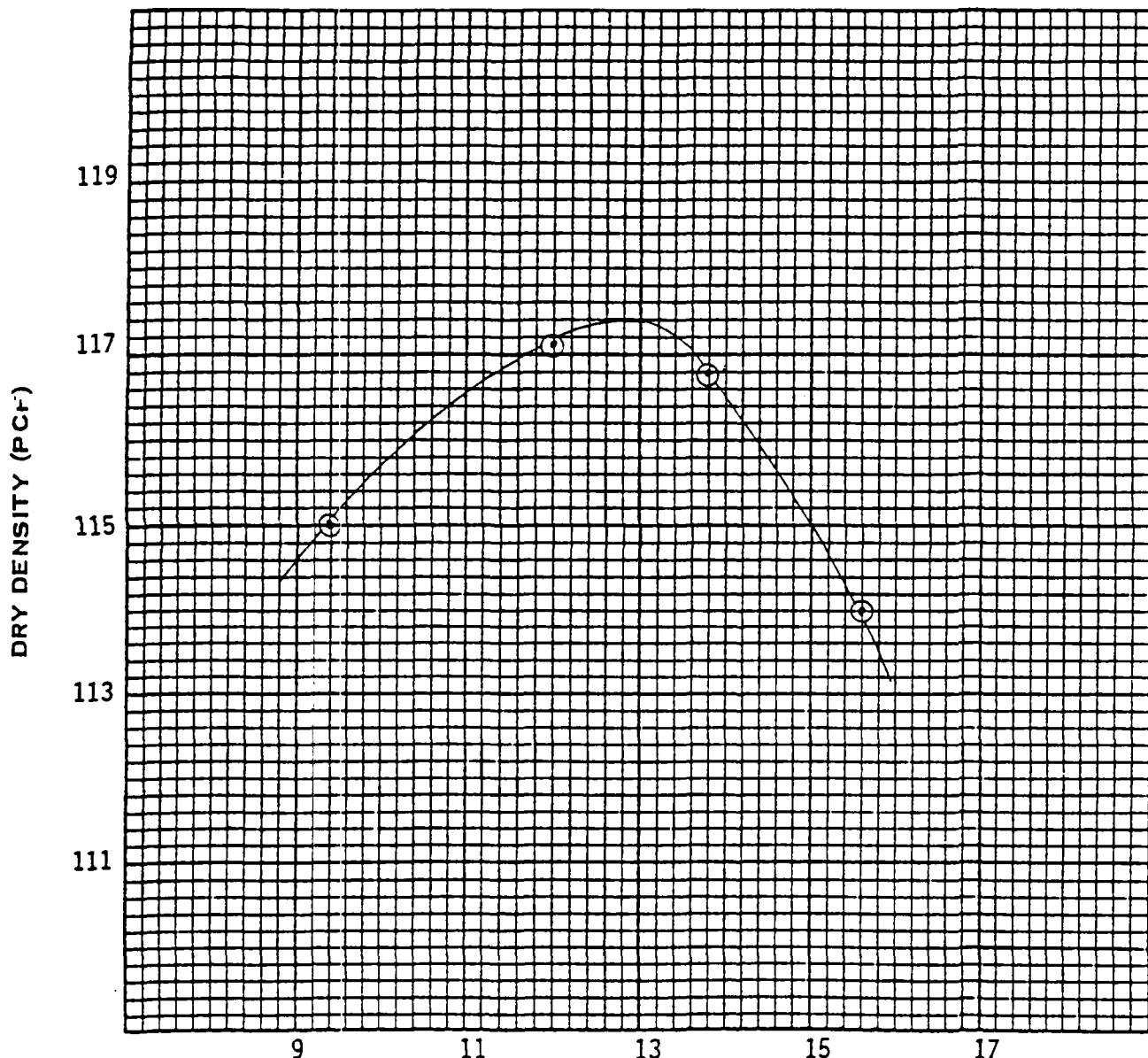
PROJECT NO. 1777	DRAWN BY: JEF	DATE: 9/10/84
SCALE: 1/1 T.S.	CHECKED BY:	Sheet 1 of 1

FIG. 1

NEYER, TISEO & HINDO, LTD.  
CONSULTING ENGINEERS

MOISTURE - DENSITY RELATIONS

PROJECT No. 84272 OC PROJECT: BASF WYANDOTTE COMPANY LANDFILL  
Sample LOCATION Wayne County Sewage Abatement Site, Taylor, Michigan  
BAG SAMPLE No. 5, 8 & 10 SAMPLE DEPTH \_\_\_\_\_  
SAMPLE DESCRIPTION Brown and Gray SILTY CLAY with Trace of Sand and Gravel.  
METHOD OF COMPACTION ASTM D-1557 Method A  
MOLD: No. \_\_\_\_\_ DIA. IN., HT. 4.584 IN., VOLUME 0333 CU. FT., WT. 9.30 LBS.  
TESTED BY: M.H. CHECKED BY: E.W. DATE: 8-17-84



MAXIMUM DRY DENSITY 117.4 PCF

OPTIMUM MOISTURE CONTENT 13.0 %

REMARKS: \_\_\_\_\_

OCT 31 1984

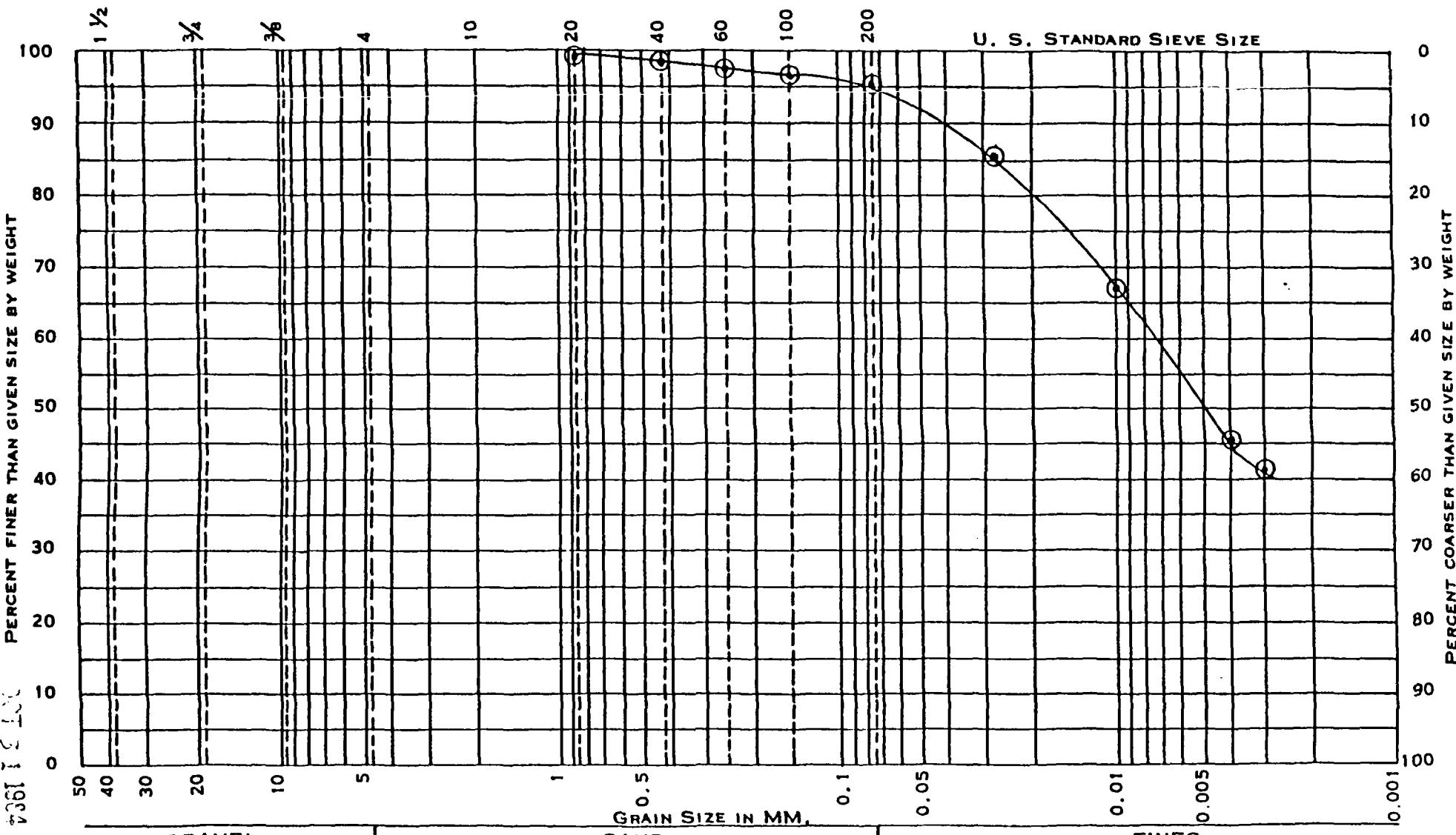
Figure 2

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GRAIN SIZE DISTRIBUTION CURVE

PROJECT No. 84272 OC LAB SAMPLE No. 120 SOURCE   
 Sample LOCATION Wayne County Sewage Abatement Site, Taylor, MI FOR BASF WYANDOTTE COMPANY LANDFILL  
 BORING No.  FIELD SAMPLE No. 5, 8 and 10 SAMPLE DEPTH  SAMPLE ELEV. (TIP) 586 - 965  
 SAMPLE DESCRIPTION Brown and Gray SILTY CLAY with Trace of Sand.

DATE SAMPLED - BY B & V DATE TESTED 8-21-84 BY R.L. CHECKED BY E.W.



GRAVEL		SAND			FINES		
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY	COLLOIDS